SONY

White paper

June 2012

XPERIA miro

ST23i/ST23a

Purpose of this document

Sony Mobile Communications product White papers are intended to give an overview of a product and provide details in relevant areas of technology.

Document history

Version		
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Sony Mobile Developer World

For the latest Sony Mobile Communications technical documentation and development tools, go to

http://developer.sonymobile.com/wp/.

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Product overview

Xperia™ miro – Made to show off what's on

Find out who's doing what and where in a flash. The sleek, slim Xperia™ miro flashes blue for your Facebook™ alerts, and in your favourite theme colour for calls and alarms. Music your food of love? Chill out to soft sounds, or let the hip hop scream out. Stuck for songs? There's millions on Music Unlimited. Feeling creative? Snap scenes, or video the party action and post it all with a quick press. You and your new phone with the latest Android Ice Cream Sandwich, sharp, smart and social.

Made to keep you posted

Being social just got more colourful. This stylish smartphone lights up your incoming alerts in your favourite colour. Facebook notifications flash in blue and your calls and alarms show off in the same colour as your theme. White, blue, turquoise, green, gold, red or purple. Your choice. The coloured light even matches your favourite artists' album art and your photos when you browse through your music or album.

Made to enjoy Facebook

Xperia™ with Facebook is an easier, faster, more intuitive way to like, comment, share from your smartphone and stay close to your friends. See, share, like and comment on music tracks and photos straight from the music player and photo album application. Check out what your friends are recommending on Facebook directly in the music player. See their events and birthdays in your calendar, or like music in the FM radio so people know what music is cool.

Made to make sweet music

Pump up the volume and make your music shout out loud. Sony's xLOUD loudness enhancement engine gives your music the respect it deserves. In a party mood? Connect Xperia™ miro to your hifi system via Wi-Fi® and DLNA® and dance to the music.

Made to light up your day

Snap your friends with the 5 megapixel camera, or shoot their magic moments in video, then post everything on Facebook with just a click. And don't just hear the voice. See the face that goes with it. Turn on the chat cam and your friends can see you live on their phone, computer or tablet.

Store more. 50 GB free cloud storage – for life*

Now there's 50 GB of free storage for your music, videos, photos and more – and you can use it forever. Together with Box® we are offering you a place for your stuff where you can get to everything from your phone, computer or tablet. Just download the Box for Android app to set up an account from your Xperia™ miro to claim your free storage space.

** This is a time limited offer that ends 31 December 2012.*

Sony Entertainment Network

Music Unlimited*. We've got what you want to hear.

Millions and millions of songs on demand from Music Unlimited. Listen offline and with no annoying ads. Enjoy dozens of preset channels and easily sync with your own music collection. Get the most from your music with Music Unlimited.

- Enjoy millions and millions of songs
- No ads
- Offline playback
- Preset channels

** Music Unlimited is a subscription service, please refer to Terms Of Service for details of fees. Music Unlimited is not available in every market.*

Signature features

Sony Xperia™ miro comes with a range of features as standard. Below is a summary of the key signature features.

Xperia™ Timescape™

Communication made easy

The Timescape™ application manages all your communication with one person in one place. You can effortlessly browse by category your Facebook™, Twitter™, email and text communications, as well as view your photos. Now everything is all together and in chronological order, so you don't have to open different applications to see what's going on.

Xperia™ Infinite button

Everything you want – from everywhere

Tap the infinite button in the Timescape™ application and smart filter each category of communication by person. For example, when viewing a text message from a friend in Timescape™, tap the infinite button to view a list of all chat messages with that friend.

Xperia™ Local connectivity

More control over your media

Using Xperia™ Local connectivity, you can exercise more control over how media files get transferred and stored. For example, you can select MTP mode to transfer files if you want to limit the risk of data corruption or select MSC mode if you want to have more control over the data storage.

Xperia™ Home screen application

The place you call Home

Customise your Home screen with widgets, shortcuts, folders, themes, wallpaper and other items. Where’s best for you? Email top right? Music player bottom left? You decide. With four extensions to your Home screen, you’ve got plenty of space to put things where you want. Just remember to flick left or right to find them.

Facts – dimensions, weight, performance and networks

Operating system	Google™ Android™ 4.0 (Ice Cream Sandwich)
Processor	800 MHz Qualcomm MSM7225A
Size	113 x 59.4 x 9.9 mm
Weight	110 grams
Available colours	Black Black pink White White gold
Main screen	
Colours	16,777,216 colour TFT
Resolution	320x480 pixels
Size (diagonal)	3.5 inches
Scratch-resistant	Yes – anti-reflection coating on mineral glass
Input mechanisms	
Text input	On-screen QWERTY keyboard, 12 key input
Touch screen	Capacitive
Touch gesture	Yes – multi-touch, up to 2 fingers supported
Handwriting recognition	Yes
Memory	
Internal phone storage	4 GB (up to 2 GB user-accessible memory)*
RAM	512 MB
Expansion slot	microSD™, up to 32 GB
Camera	
Camera resolution	5 MP
Digital zoom	4x
Photo flash	Yes – LED
Video recording	Yes – VGA
Video chat camera	Yes – VGA
Sensors	
Accelerometer	Yes
Proximity sensor	Yes

Magnetometer	Yes
Networks	
ST23i	UMTS HSPA 900 (Band VIII), 2100 (Band I) GSM GPRS/EDGE 850, 900, 1800, 1900
ST23a	UMTS HSPA 850 (Band V), 1900 (Band II), 2100 (Band I) GSM GPRS/EDGE 850, 900, 1800, 1900
Data transfer speeds	
GSM GPRS	Up to 86 kbps (download). Up to 86 kbps (upload).
GSM EDGE	Up to 237 kbps (download). Up to 237 kbps (upload).
UMTS HSDPA cat 8(downoad)	Up to 7.2 Mbps
UMTS HSUPA cat 6 (upload)	Up to 5.76 Mbps
Talk time (GSM)	Up to 5 hours**
Standby time (GSM)	Up to 470 hours**
Talk time (UMTS)	Up to 6 hours**
Standby time (UMTS)	Up to 545 hours**
Music listening time	Up to 36 hours and 30 minutes**
Video playback time	Up to 8 hours**
Battery	1500 mAh, typical 1460 mAh, minimum

** Internal phone storage comprising 650 MB System memory used for firmware, 766 MB Phone memory for downloaded applications, and 2 GB Internal storage used for music, pictures, movies, and some application data.*

*** Values are according to GSM Association Battery Life Measurement Technique as performed in controlled laboratory conditions. Actual time may vary.*

***NOTE**: Battery performance may vary depending on network conditions and configurations, and phone usage.*

***NOTE**: All performance metrics are measured under laboratory conditions.*

Categorised feature list

Camera
5 megapixel camera
4x digital zoom
Auto focus
Flash/Photo flash
Flash/Photo light
Front-facing camera (VGA)
Geotagging
Self-timer
Send to web
Touch capture
Video light
Video recording

Music
Album art
Bluetooth™ stereo (A2DP)
Manual equalizer
Walkman™ player
PlayNow™ service*
TrackID™ music recognition*
xLoud™ Experience

Internet
Bookmarks
Google Play™
Google™ search*
Google Voice™ Search*
Google Maps™ for Mobile with Street view and Latitude™*
NeoReader™ barcode scanner
Web browser (WebKit™)

Communication
Call list
Conference calls
Facebook™ application*
Xperia™ with Facebook™ Friends application
Google Talk™ application*
Google Talk™ video chat*
Multiple IM
Speakerphone
Twitter™ (Timescape™ integration)*
Video chat ready
Xperia™ Timescape™

Messaging
Conversations
Email
Gmail™
Handwriting recognition
Instant messaging
Multimedia messaging (MMS)
Predictive text input
Text messaging (SMS)

Design
Auto rotation
Gesture input
On-screen 12-key keyboard
On-screen QWERTY keyboard
Picture wallpaper
Touch screen
Wallpaper animation

** This service is not available in all markets.*

Entertainment
3D games
Media browser
Motion gaming
Radio (FM radio with RDS)
Sony Entertainment Network*
Video streaming
YouTube™*

Organiser
Airplane mode
Alarm clock
Calculator
Calendar
Contacts
Document readers
eCompass™
E-Manual
Infinite button
Notes
Tasks
Setup Wizard

Connectivity
3.5 mm audio jack (CTIA)
aGPS*
Bluetooth™ wireless technology
DLNA Certified®
Media Transfer Protocol support
Micro USB support
Native USB tethering
Media Go™*
PC Companion
Synchronisation via Facebook™
Synchronisation via SyncML™
Synchronisation via Google™
Synchronisation with computer
Synchronisation via Microsoft® Exchange ActiveSync®
USB High speed 2.0 support
USB mass storage
Wi-Fi®
Wi-Fi® Hotspot functionality

** This service is not available in all markets.*

Technologies in detail

NOTE: The information outlined below is general and levels of compliance to standards and specifications may vary between products and markets. For more information, contact Sony Developer World or your Sony contact person where applicable.

Device-to-device communications (local)

Bluetooth™ wireless technology

Bluetooth™ profiles supported	Advanced Audio Distribution Profile v1.2 Audio/Video Remote Control Profile v1.0 Handsfree Profile v1.5 Headset Profile v1.1 Object Push Profile v1.1 Phonebook Access Profile v1.0
Core version and supported core features	Advanced Audio 2.1+EDR
Connectable devices	Products which support at least one of the profiles above.

More information:

http://developer.sonymobile.com/wp/

www.bluetooth.com

Wi-Fi®

Supported standards	IEEE 802.11b/g/n and Wi-Fi®
Connectable devices	Wi-Fi® access points
Frequency band	2.4 GHz
Data transfer rate	Up to 72 Mbit/s
Security	WEP 64 bit WEP 128 bit TKIP CCMP (AES) Open Authentication Shared Authentication EAP-SIM EAP-TLS EAP-TTLS/MSCHAPv2 PEAPv0/EAP-MSCHAPv2 PEAPv1/EAP-GTC WPA Personal and WPA2 Personal WPA Enterprise and WPA2 Enterprise
Encryption	WEP, TKIP and AES
Power save	WMM-UAPSD QoS, WMM

DLNA Certified® (Digital Living Network Alliance)

Supported Device Classes	**M-DMS – Mobile Digital Media Server** Media Types: Image, Video and Music Summary: The digital media server exposes the media files in your phone to a Wi-Fi® network. The files can then be accessed from other DLNA Certified® clients. **+PU+** Media Types: Image, Video and Music Summary: Play media saved in the phone on another device, such as a TV or computer, using 2-box push technology. The +PU+ feature is integrated into the Gallery and Music applications. **M-DMP – Mobile Digital Media Player** Media Types: Image, Video and Music Summary: Play content stored on another device, for example, a server or a PC, directly on the phone.
Supported Bearers	Wi-Fi®
DRM Support	The Sony DLNA Certified® implementation does not support DRM-protected content.

Messaging

MMS (Multimedia Messaging Service)

According to OMA Multimedia Messaging Service v1.0 + SMIL

Email

Bearer type (IP)	GPRS, EGPRS, UMTS, Wi-Fi®
Character sets	BIG5 Traditional Chinese GB2312 Simplified Chinese GB18030 ISO-2022-JP Japanese ISO-8859-1 ISO-8859-2 Eastern Europe ISO-8859-5 Cyrillic ISO-8859-7 Greek ISO-8859-9 Turkish ISO 8859-11 KOI8-R Cyrillic Shift_JIS Japanese USASCII UTF-16 UTF-8 Windows® 874 Windows® 1251 Cyrillic Windows® 1252 Windows® 1254 Turkish Windows® 1258 Vietnamese
Protocols	POP3 and IMAP4
Push email	Microsoft® Exchange ActiveSync® (EAS)
Secure email	SSL/TLS, both port methods (POPS/IMAPS) and START-TLS
HTML mail	Yes (read only)

More information:

http://developer.sonymobile.com/wp/

www.openmobilealliance.org

Positioning – location based services

Supported standards:

- OMA Secure User Plane Location (SUPL) v1.0
- 3GPP™ Control Plane location (including Emergency location), only support E911.
- Qualcomm® GPSOneXtra

Provisioning (OMA CP)

OMA CP version 1.1

Multimedia (audio, image and video)

Audio Playback	**Decoder format**	**Supported in file format**
	Audio decoding MPEG-1/2/2.5, audio layer 3	MP3 (.mp3), 3GPP (.3gp), MP4 (.mp4, .m4a)
	AAC, AAC+, eAAC+	3GPP (.3gp), MP4 (.mp4)
	AMR-NB, AMR-WB	3GPP (.3gp), MP4 (.mp4)
	General MIDI (GM)	SMF (.mid)
	Linear PCM 16bit	WAV (.wav)
	OTA	OTA (.ota)
	Ogg vorbis	Ogg vorbis (.ogg)
Audio Recording	**Encoder format**	**Supported in file format**
	AMR-NB, AMR-WB	3GPP (.3gp), MP4 (.mp4), AMR (.amr)
	AMR-NB, AMR-WB, AAC-LC stereo Sample rate: 48 kHz Bit rate: 128 kbps	3GPP (.3gp), MP4 (.mp4)
Image Playback	**Decoder format**	**Supported in file format**
	1, 4, 8, 16, 24 and 32 bpp and RLE encoded formats	BMP (.bmp)
	Single and multi-frame, bitmap mask support (GIF87a format and GIF89a format)	GIF (.gif)
	Joint Photographic Experts Group	JPEG (.jpg)
	Portable Network Graphics Bitmap mask support	PNG (.png)
	Wireless Bitmap	WBMP (.wbmp)
Image Capture	**Encoder format**	**Supported in file format**
	Joint Photographic Experts Group	JPEG (.jpg)
Video Playback	**Decoder format**	**Supported in file format**
	MPEG-4 Visual Simple Profile	3GPP (.3gp), MP4 (.mp4)
	H.264	3GPP (.3gp), MP4 (.mp4)
	H.263 Profile 0	3GPP (.3gp)

Video Recording	Encoder format	Supported in file format
	- Video H.263 Profile 0, H.264 Baseline Profile - Audio: AAC-LC stereo Sample rate: 48 kHz Bit rate: 128 kbps AMR-NB	3GPP (.3gp), MP4 (.mp4)
Audio/Video Streaming	Streaming transport	RTSP according to 3GPP™ HTTP streaming
DRM	DRM (Digital Rights Management) – features the rights and copy protection of downloaded content	OMA DRM 1.0

Synchronisation (OMA DS, EAS, Google Sync™)

OMA Data Synchronisation protocol versions 1.1.2 and 1.2

OMA Data Formats: vCard 2.1, vCalendar 1.0

Microsoft® Exchange ActiveSync® protocol version 2.5

Microsoft® Exchange ActiveSync® protocol version 12.0

Microsoft® Exchange ActiveSync® protocol version 14.0

Microsoft® Exchange ActiveSync® protocol version 14.1

Google Sync™

Related information:

http://developer.sonymobile.com/wp/

Web browser

Browser version	Android 4.0 Browser (Based on WebKit™)
Navigation/rendering	Full page PC rendering Landscape/portrait rendering Pan & Zoom
Search	Internet search
Browser compliancy	CSS 2.0 CSS 2.1 CSS 3.0 DOM 2.0 DOM 3.0 HTML version 4.0 HTML version 5.0 V8 JavaScript Engine/ECMA-script 262 5rd edition XHTML Basic version 1.0 XHTML 1.1
Supported Device API	Geo-location API
Protocol compliancy	Gzip HTTP/1.1 OMA Download 1.0 TLS 1.0 and SSL 3.0

Related information:

http://developer.sonymobile.com/wp/

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